Serial Number: 09/004,395B

CRF Processing Date: 6/14/44
Edited by: _____
Verified by: _____ (STIC staff)

ENTERED

- [ ] Changed a file from non-ASCII to ASCII

- [ ] Changed the margins in cases where the sequence text was "wrapped" down to the next line.

- [ ] Edited a format error in the Current Application Data section, specifically: _____

- [ ] Edited the Current Application Data section with the actual current number. The number inputted by the applicant was [ ] the prior application data; or [ ] other _____.

- [ ] Added the mandatory heading and subheadings for "Current Application Data".

- [ ] Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.

- [ ] Changed the spelling of a mandatory field (the headings or subheadings), specifically: _____

- [ ] Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were: _____

- [ ] Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited: _____

- [ ] Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.

- [ ] Inserted colons after headings/subheadings. Headings edited included: _____

- [ ] Deleted extra, invalid, headings used by an applicant, specifically: _____

- [x] Deleted: [x] non-ASCII "garbage" at the beginning/end of files; [ ] secretary initials/filename at end of file; [ ] page numbers throughout text; [ ] other invalid text, such as _____.

- [ ] Inserted mandatory headings, specifically: _____

- [ ] Corrected an obvious error in the response, specifically: _____

- [ ] Edited identifiers where upper case is used but lower case is required, or vice versa.

- [ ] Corrected an error in the Number of Sequences field, specifically: _____

- [ ] A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.

- [ ] Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____

*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

RAW SEQUENCE LISTING
PATENT APPLICATION **US/09/004,395B**

Input Set: **I004395B.RAW**

> **This Raw Listing contains the General Information Section and up to first 5 pages.**

```
 1   <110> APPLICANT: Gilmore Jr., Robert D
 2         Johnson, Barbara JB
 3   <120> TITLE OF INVENTION: RECOMBINANT P37/FlaA AS A DIAGNOSTIC REAGENT
 4   <130> FILE REFERENCE: 97,429
 5   <140> CURRENT APPLICATION NUMBER: US/09/004,395B
 6   <141> CURRENT FILING DATE: 1998-01-08
 7   <160> NUMBER OF SEQ ID NOS: 6
 8   <170> SOFTWARE: Microsoft Word 97
 9   <210> SEQ ID NO 1
10   <211> LENGTH: 1655
11   <212> TYPE: DNA
12   <213> ORGANISM: B.burgdorferi
13   <220> FEATURE:
14   <221> NAME/KEY: CDS
15   <222> LOCATION: 473..1498
16   <220> FEATURE:
17   <221> NAME/KEY: sig_peptide
18   <222> LOCATION: 473..538
19   <220> FEATURE:
20   <221> NAME/KEY: mat_peptide
21   <222> LOCATION: 539..1498
22   <223> OTHER INFORMATION:
23   <400> SEQUENCE: 1
24         atgataatct tttttcaaaa aaggtttttt attttcattc tagcaaggga tttgttgcta      60
25         atttaagata tttaagagat gaacaaaatt tgaaagataa tttagatctt ttagtaaaag     120
26         attttctttt aggaagcaat gagggggttt cttttgggtt tttattaagt gattcaagat     180
27         ttttatattc ttttttaaag aatggagttt attatgtaaa tctttcaaga gaattttatg     240
28         attcttttaa taatggtgat tataatgaat cttttgatgt taaggtcaat cttttttgcta     300
29         tgtctttaat aaaaacaatg cgctttaact atcctggtaa gataaaaaag attattattc     360
30         ttgttgaagg gtgtatctta aaggagcaaa gttgatataat taaattttac taataaaaat     420
31         aattaaaaaa cgaaaatttt ataaagatt tatatataag gagttggttt ac atg          475
32                                                                      Met
33                                                                      -22
34         aaa agg aaa gct aaa agt att tta ttt ttt tta tta tcc act gtt ctt         523
35         Lys Arg Lys Ala Lys Ser Ile Leu Phe Phe Leu Leu Ser Thr Val Leu
36             -20                 -15                 -10
37         ttt gct caa gag act gat gga tta gca gag ggt tct aaa agg gca gag         571
38         Phe Ala Gln Glu Thr Asp Gly Leu Ala Glu Gly Ser Lys Arg Ala Glu
                -5                   1              5                10
```

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··
44         Ser Thr Arg Leu Asp Leu Thr Asn Tyr Val Asp Tyr Val Tyr Ser Gly
```

```
45                30                   35                   40
46    gct tct ggt att gtt aag ccg gaa gat atg gtt gta gat ctt ggg ata        715
47    Ala Ser Gly Ile Val Lys Pro Glu Asp Met Val Val Asp Leu Gly Ile
48          45                  50                   55
49    aat aat tgg agc gtt tta ctt act cct tct gca agg ttg cag gct tac        763
50    Asn Asn Trp Ser Val Leu Leu Thr Pro Ser Ala Arg Leu Gln Ala Tyr
51          60                  65                   70                   75
52    gtt aaa aat tca gtt gtt gcg ccc gct gtt gtt aag agt gag tca aaa        811
53    Val Lys Asn Ser Val Val Ala Pro Ala Val Val Lys Ser Glu Ser Lys
54                      80                   85                   90
55    agg tac gca ggt gat act att ttg ggg gta aga gtt ttg ttt cca agc        859
56    Arg Tyr Ala Gly Asp Thr Ile Leu Gly Val Arg Val Leu Phe Pro Ser
57                      95                  100                  105
58    tat tct caa tca tct gct atg att atg cca cca ttt aaa att cct ttt        907
59    Tyr Ser Gln Ser Ser Ala Met Ile Met Pro Pro Phe Lys Ile Pro Phe
60                110                  115                  120
61    tat tca ggg gaa agt ggc aat caa ttt tta ggc aaa ggt ctt att gat        955
62    Tyr Ser Gly Glu Ser Gly Asn Gln Phe Leu Gly Lys Gly Leu Ile Asp
63          125                 130                  135
64    aac att aaa acc atg aaa gaa att aag gta tct gtt tat agt tta ggg       1003
65    Asn Ile Lys Thr Met Lys Glu Ile Lys Val Ser Val Tyr Ser Leu Gly
66    140                 145                  150                  155
67    tat gag ata gat ctt gag gtt tta ttt gaa gat atg aat ggc atg gaa       1051
68    Tyr Glu Ile Asp Leu Glu Val Leu Phe Glu Asp Met Asn Gly Met Glu
69                160                  165                  170
70    tat gct tat tct atg ggt act tta aag ttt aaa ggg tgg gct gat tta       1099
71    Tyr Ala Tyr Ser Met Gly Thr Leu Lys Phe Lys Gly Trp Ala Asp Leu
72                175                  180                  185
73    att tgg tca aat cct aac tat att cct aat ata tca tcc aga att att       1147
74    Ile Trp Ser Asn Pro Asn Tyr Ile Pro Asn Ile Ser Ser Arg Ile Ile
75                190                  195                  200
76    aaa gac gat gtt cca aat tat cct ctt gct tca agt aaa atg aga ttt       1195
77    Lys Asp Asp Val Pro Asn Tyr Pro Leu Ala Ser Ser Lys Met Arg Phe
78          205                 210                  215
79    aag gct ttt aga gtt tca aag tca cac agt tca aaa gtt aaa aat ttc       1243
80    Lys Ala Phe Arg Val Ser Lys Ser His Ser Ser Lys Val Lys Asn Phe
81    220                 225                  230                  235
82    atc ttt tat gtt aaa gat tta aga gtt ctt tat gat aag cta agt gtt       1291
83    Ile Phe Tyr Val Lys Asp Leu Arg Val Leu Tyr Asp Lys Leu Ser Val
84                240                  245                  250
85    tca ata gat tct gat att gac agt gag tct gta ttt aaa gtt tat gag       1339
86    Ser Ile Asp Ser Asp Ile Asp Ser Glu Ser Val Phe Lys Val Tyr Glu
87          255                 260                  265
88    act agc gga act gaa tcc ctt cgt aaa tta aag gca cac gaa act ttt       1387



93          285                 290                  295
94    ttc caa aac ttt gta gaa aag att gag agt gaa aaa cct gaa gaa tca       1483
```

```
    95          Phe Gln Asn Phe Val Glu Lys Ile Glu Ser Glu Lys Pro Glu Glu Ser
    96          300               305             310             315
    97          tct ccg aaa aat tag gtttaaatta atatgtaaag ctacctaaaa ggtttgcttt     1538
W-->α  98       Ser Pro Lys Asn
W-->α  99                       320
    100         acatattaaa ataataggaa atagtatatg gaaatattag atttggaaaa tgaagagctt     1598
    101         ttaggagttt tttttgaaga agctcaaaat cttgtagata tccttgaaga gaatatt       1655
    102  <210> SEQ ID NO 2
    103  <211> LENGTH: 341
    104  <212> TYPE: PRT
    105  <213> ORGANISM: B.burgdorferi
    106  <400> SEQUENCE: 2
    107         Met Lys Arg Lys Ala Lys Ser Ile Leu Phe Phe Leu Leu Ser Thr Val
    108         -22     -20             -15             -10
    109         Leu Phe Ala Gln Glu Thr Asp Gly Leu Ala Glu Gly Ser Lys Arg Ala
    110              -5              1               5                   10
    111         Glu Pro Gly Glu Leu Val Leu Asp Phe Ala Glu Leu Ala Arg Asp Pro
    112                      15              20                  25
    113         Ser Ser Thr Arg Leu Asp Leu Thr Asn Tyr Val Asp Tyr Val Tyr Ser
    114                      30              35                  40
    115         Gly Ala Ser Gly Ile Val Lys Pro Glu Asp Met Val Val Asp Leu Gly
    116                  45              50                  55
    117         Ile Asn Asn Trp Ser Val Leu Leu Thr Pro Ser Ala Arg Leu Gln Ala
    118              60              65                  70
    119         Tyr Val Lys Asn Ser Val Val Ala Pro Ala Val Val Lys Ser Glu Ser
    120         75              80                  85                  90
    121         Lys Arg Tyr Ala Gly Asp Thr Ile Leu Gly Val Arg Val Leu Phe Pro
    122                      95              100                 105
    123         Ser Tyr Ser Gln Ser Ser Ala Met Ile Met Pro Pro Phe Lys Ile Pro
    124                      110             115                 120
    125         Phe Tyr Ser Gly Glu Ser Gly Asn Gln Phe Leu Gly Lys Gly Leu Ile
    126                      125             130                 135
    127         Asp Asn Ile Lys Thr Met Lys Glu Ile Lys Val Ser Val Tyr Ser Leu
    128              140             145                 150
    129         Gly Tyr Glu Ile Asp Leu Glu Val Leu Phe Glu Asp Met Asn Gly Met
    130         155             160                 165                 170
    131         Glu Tyr Ala Tyr Ser Met Gly Thr Leu Lys Phe Lys Gly Trp Ala Asp
    132                      175             180                 185
    133         Leu Ile Trp Ser Asn Pro Asn Tyr Ile Pro Asn Ile Ser Ser Arg Ile
    134                      190             195                 200
    135         Ile Lys Asp Asp Val Pro Asn Tyr Pro Leu Ala Ser Ser Lys Met Arg
    136              205             210                 215
    137         Phe Lys Ala Phe Arg Val Ser Lys Ser His Ser Ser Lys Val Lys Asn
    138              220             225                 230
```

```
    143         Glu Thr Ser Gly Thr Glu Ser Leu Arg Lys Leu Lys Ala His Glu Thr
    144         270             275                 280
```

```
145            Phe Lys Arg Val Leu Lys Leu Arg Glu Lys Ile Ser Ile Ala Glu Gly
146                    285                 290             295
147            Ser Phe Gln Asn Phe Val Glu Lys Ile Glu Ser Glu Lys Pro Glu Glu
148                300                 305             310
149            Ser Ser Pro Lys Asn
150                315
151    <210> SEQ ID NO 3
152    <211> LENGTH: 21
153    <212> TYPE: DNA
154    <213> ORGANISM: B.burgdorferi
155    <400> SEQUENCE: 3
156            atgaaaagga aagctaaaag t                                        21
157    <210> SEQ ID NO 4
158    <211> LENGTH: 19
159    <212> TYPE: DNA
160    <213> ORGANISM: B.burgdorferi
161    <400> SEQUENCE: 4
162            gatggattag cagagggtt                                          19
163    <210> SEQ ID NO 5
164    <211> LENGTH: 21
165    <212> TYPE: DNA
166    <213> ORGANISM: B.burgdorferi
167    <400> SEQUENCE: 5
168            tgggataaat aattggagcg t                                        21
169    <210> SEQ ID NO 6
170    <211> LENGTH: 21
171    <212> TYPE: DNA
172    <213> ORGANISM: B.burgdorferi
173    <400> SEQUENCE: 6
174            ctaatttttc ggagatgatt c                                        21
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VERIFICATION SUMMARY
PATENT APPLICATION **US/09/004,395B**

Input Set: **I004395B.RAW**

Line	?	Error/Warning	Original Text
98	W	Line data has been corrected	Ser Pro Lys Asn *
99	W	Invalid/Missing Amino Acid Numbering	320

CORRECTION SUMMARY
PATENT APPLICATION **US/09/004,395B**

Input Set: **I004395B.RAW**

Line	Original Text	Corrected Data
98	Ser Pro Lys Asn *	Ser Pro Lys Asn

PREVIOUSLY ERRORED SEQUENCES-EDITED

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    1    <210> 6
    2    <211> 21
    3    <212> DNA
    4    <213> B.burgdorferi
    5    <400> 6
    6          ctaatttttc ggagatgatt c                                    21
```

RAW SEQUENCE LISTING   DATE: 06/19/1999
PATENT APPLICATION **US/09/004,395B**   TIME: 16:32:24

Input Set: **I004395B.RAW**

> **This Raw Listing contains the General Information Section and those Sequences containing ERRORS.**

Does Not Comp...
Correct... Diskette Ne...

```
 1   <110> Gilmore Jr., Robert D
 2         Johnson, Barbara JB
 3   <120> RECOMBINANT P37/FlaA AS A DIAGNOSTIC REAGENT
 4   <130> 97,429
 5   <140> US/09/004,395B
 6   <141> 1998-01-08
 7   <160> 6
 8   <170> Microsoft Word 97
```

ERRORED SEQUENCES FOLLOW

```
       9   <210> 6
      10   <211> 21
      11   <212> DNA
      12   <213> B.burgdorferi
      13   <400> 6
      14         ctaattttttc ggagatgatt c                              21
E-->  15         1
```

VERIFICATION SUMMARY
PATENT APPLICATION **US/09/004,395B**

DATE: 06/19/1999
TIME: 16:32:24

Input Set: **I004395B.RAW**

Line ? Error/Warning   Original Text
----- - -- --
   15 E Number of Bases conflict w/ Running Total 1